Accessibility and the Demand for University Education

by

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The Commission on the Future Development of the Universities of Ontario

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TO: Respondents to the Discussion Paper of The Commission on the Future Development of the Universities of Ontario.

In February 1984, the Commission requested Professor David Stager of the Department of Economics in the University of Toronto to prepare a discussion paper on various issues related to accessibility. This study has now been received by the Commission.

We believe that Professor Stager's analysis and his review of the literature will be useful to many respondents to the June Discussion Paper published by the Commission. It is of course understood that the views expressed by Professor Stager are his own and do not necessarily coincide with those of the Commission.

We are making available only a limited supply of this study and would suggest that if your organization requires more than the number received you should make your own arrangements for providing additional copies.

E.C. Bovey
Chairman

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1. Introduction

One of the terms of reference for the Commission on the Future Development of the Universities of Ontario is

> To address the issue of accessibility to university level education in the context of economic realities and in the context of a differentiated university structure...

The "issue of accessibility" is to include - among other considerations - attention to arrangements for life-long learning, university entrance examinations, and enrolment adjustments in the professional programs. This latter item is the subject of another discussion paper prepared for the Commission and therefore will not be treated within this paper.

Accessibility is also to be addressed in the context of "economic realities" and of "a differentiated university structure". It is assumed that economic realities refers to possible changes in tuition fees, student aid, and financial resources for specific programs. A differentiated university structure could result in a change in the location and size of certain university programs, and in the institutional arrangements for academic credit and transfer across programs and institutions.

Arrangements for life-long learning will include provision of instruction through courses of varying length, intensity, location, and using a variety of instructional technologies. University entrance examinations could lead toward more equitable admission decisions by standardizing the basis for comparing students- - provided that cultural bias could be eliminated from such tests.

The author was asked to provide a discussion paper that would review the conceptual issues and empirical evidence relating to the very broad and complex subject of accessibility to university education, but without coming to specific conclusions or recommendations. This paper is therefore

intended as an aid to understanding and discussion of the issues; it does not pretend to offer new research or analysis nor to offer comprehensive statistical data on the topics. Several references are included at the end of the paper for readers who wish to examine these questions in greater depth. Specific reference to participation in graduate education is also excluded, although the general issues and observations would be applicable there also.

This paper attempts to provide an inter-disciplinary approach to the discussion of participation in university education. Sociologists have emphasized differences in educational participation rates associated with various social factors such as gender, race, language, and parents' education and occupation. Economists have focused on total enrolments due to changes in tuition fees, student aid, family income, and expected salary levels, while treating the sociologists' diverse set of factors under the single category of "personal tastes and preferences". Furthermore, the sociological literature tends to emphasize equality of accessibility and to examine causes of inequality. All of these factors are of course superimposed on population changes.

Accessibility is a complex concept to define, especially in terms that make it operational or quantifiable. This is essential however, if one is to measure changes in the degree of accessibility to university education for various groups in the population. One must also make distinctions among closely associated terms and concepts: words such as opportunity, choice, equality, and participation are used in combinations to produce phrases that appear similar but have quite different meanings. Furthermore, in some cases equality of educational opportunity is treated as the ultimate goal while in other cases this is seen as a means to a further objective, namely equality of employment opportunity and particularly the opportunity to enter occupations with higher earnings and prestige.

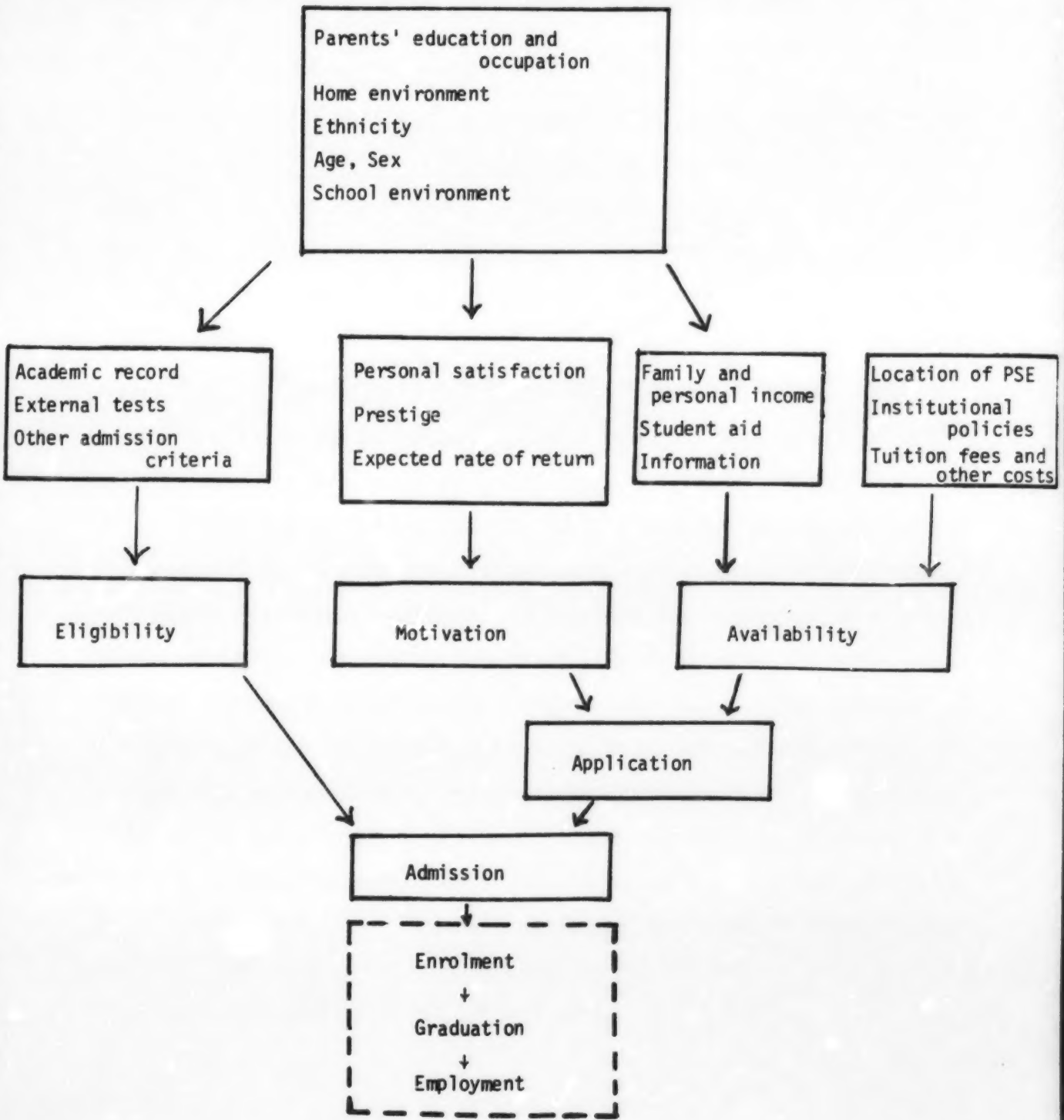
In Figure 1, the factors influencing accessibility to and demand for university education are shown in diagrammatic form. It is hoped that this outline will emphasize that accessibility is determined by many influences, but that these can be conveniently grouped as availability, eligibility, and motivation.

There is also at the bottom of Figure 1 a broken-line box enclosing the further stages from admission to employment, as a reminder that educational and employment opportunity is not limited to admissibility. Students must follow through to graduation and employment. These stages are also influenced by some of the same factors that affect motivation. Indeed, it has been found that most young people who do not attend college would be very unlikely to obtain degrees if they were to attend. The social and financial difficulties that reduce their probability of applying also limit their probability of graduating.[1]

Equality of accessibility or of educational opportunity is sometimes equated with equality of participation. This is the basic error in any treatment of the accessibility issue. There is no reason to expect that all groups in the population should be equally represented in the higher education system, especially when one recalls the diversity of determining factors shown in Figure 1. Instead, the social emphasis on equality of opportunity requires that these factors be reviewed to see where action can be taken to inform, clarify, guide, and enlarge the range of opportunities or choices available to an individual. At the same time, it should be recognized that the most influential forces on a student's educational and career decisions are formed early in the family and school experience.

Figure 1

Factors Influencing Accessibility to and Demand for University Education



The Ontario government's policy on accessibility is stated by the (Fisher) Committee on the Future Rate of Universities in Ontario, namely that

> current policy on accessibility promises that a place in some program at some Ontario university, but not necessarily the program or university of first choice, will be provided for every academically qualified student who wishes to pursue university studies. (p. 11)

The same committee emphasized not just accessibility, but equality of accessibility "across all social and economic groups in the province".

Individual universities, and faculties within universities, also have other more specific policies that relate in varying degrees to accessibility. These are usually in the form of efforts made to inform and attract and to give admission preference to students from specific minority groups. Financial aid policies may also enhance accessibility for certain groups although by far the largest portion of student aid at the undergraduate level is administered through the province's Ontario Student Assistance Program.

The accessibility policies of the 1960s - when the Ontario government's policy was first announced - were based largely on the assumption that a government's role was to assure an adequate number of places in postsecondary education for the rapid growth in demand resulting from the postwar baby-boom and the increasing personal incomes. This view was the obvious corollary following from government's virtual monopoly on the supply of postsecondary educational institutions. There was also a concern that students with the appropriate levels of academic ability but without financial means should not be barred from further education. This was also a supply-side concern in that a government set the price (tuition fee) as well as determining the quantity of places. More recently it has been recognized that demand for higher education is not autonomous, and that it can be influenced by public policy. One can see

this especially in the high enrolment rates in community colleges in Ontario soon after their introduction in the late 1960s. Demand is influenced in this sense by what programs are available, where, and under what terms. It might be argued that the Ontario government simply responded to a latent demand for community college education in the 1960s. But this is only a partial explanation since the government deliberately created a special-purpose type of post-secondary institution that is different from "community colleges" in other provinces and states. Demand may also be influenced within the existing structure of postsecondary education through policies that affect both the secondary schools and the labour markets for postsecondary graduates. In the rest of this paper, accessibility will be treated in this broader sense of demand conditioning as well as supply response.

2. Factors Affecting University Enrolment Decisions

A. Economic Determinants

Throughout much of the debate in the 1960s and 1970s on accessibility to higher education, there was an emphasis on the financial barriers blocking students from higher education. Tuition fees and other expenses for books, supplies, residence, and transportation were thought to be major impediments for able students from low-income families. Several empirical studies were undertaken to examine the impact of these economic factors, separate from other social-cultural influences on students' motivation for further study.

An economic approach to the demand for higher education immediately confronts the issue that education represents both consumption and investment for the student (and indirectly, for parents as well). The consumption approach recognizes that education (and especially certain university programs) may provide direct, immediate satisfaction or enjoyment for a student. The

challenge of learning new concepts and techniques, pleasures of extracurricular social and athletic activities, and perhaps even an element of prestige and self-esteem are the satisfactions that usually accompany university life. But these are thought to be only a minor part of the benefits students expect from a university education. Various surveys have found that students' major motive for attending university is to obtain better employment-in terms of job choice, satisfaction, and financial returns - than would otherwise be available to them. This latter element represents the investment or "human capital" approach to the demand for higher education.

From a consumption perspective, the demand for higher education would depend on the price required, one's own or family income, and one's "tastes or preferences" for higher education. The latter are factors that are influenced by the information and persuasion flowing from many of the factors usually included in sociologists' studies of accessibility - parents' education, school environment, peer group, and so on.

The price for higher education is often seen simply as the tuition fee for a course or program but the true cost to students also includes other direct expenses and - most importantly - the earnings forgone by not having full-time employment. These earnings, even after adjustment for income tax and some part-time employment, have been estimated to constitute about 50 to 60 percent of the total cost of an undergraduate university education. It is therefore essential to examine the effect of changes in both tuition fees and forgone earnings when economic determinants of accessibility are considered. One's own or family income will determine how much education one can afford at any given price, just as income limits consumption of all other goods and services.

The determinants of an investment demand for higher education are, however, conceptually quite different from the consumption case. Investment (or enrolment) in university education depends on the expected rate of financial return, or, the additional life-time earnings a student expects to receive following graduation from (and bearing the cost of) a given university program.[2] In this case the full cost of education is again an important factor, but income now affects how a student will finance the educational investment project, rather than acting as a limit on what one can afford to consume.

It is important to focus on the rate-of-return approach because it encompasses changes in both educational costs and changing labour market conditions. Enrolments could therefore be seen to increase, despite a real increase in tuition fees, if students expected an increased demand for graduates of the program. In fact, evidence shows that changes in the rate of return generally account for more of the variation in enrolments over time than do fees or family income.[3]

i. Tuition Fees and Other Costs

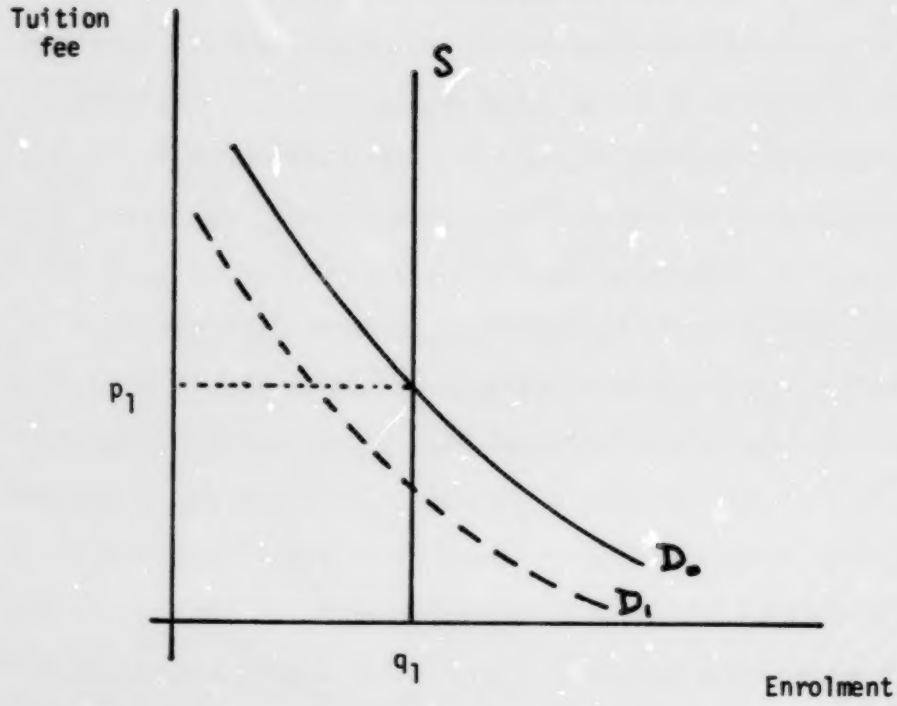
The effect of changes in tuition fees on enrolments is usually measured in terms of the price elasticity of demand for higher education. "Elasticity" is the ratio of the percentage change in enrolments resulting from a given percentage change in the tuition: for example, if a ten percent increase in fees caused a five percent reduction in enrolments, the elasticity would be -5/10 or -0.5. Calculation of tuition fee elasticity is difficult because increases in fees are often coupled with increases in grants for lower income students. Thus one needs to look at the effect of changes in net fees or net educational costs. (There is also the possibility that higher fees are part of a policy to reduce the number of places available in a program, such that one cannot clearly separate the supply effects on the enrolment demand.)

Tuition fee changes and differentials in tuition fees among programs are unlikely to have much effect on enrolments since fees are a small part of the total cost of university education. When forgone earnings are taken into account, tuition fees represent less than ten percent of the student's costs. An increase in fees of ten percent would thus be an increase of only one percent in the total cost of education. There is, however, a difficult empirical question with this argument. Fees are a direct expenditure that must be financed with "hard cash" while forgone earnings are a forfeiture of income that needs to be replaced only to finance room and board and other personal expenses. Do students respond equally to the same changes in fees and in forgone earnings? Even if a student does not include the full amount of forgone earnings in the cost calculation, it should be obvious that a tuition fee increase is less important in this total context than when it is viewed alone - as is usually the case in public policy decisions.

The consumption demand for education (in terms of university enrolment) can be seen diagrammatically as portrayed in Figure 2. Since the number of places available is determined by the government separately from the tuition level, the supply is shown as a fixed quantity, q_1. Demand is inversely related to tuition fees. The equilibrium fee - where places demanded equal the number of places supplied - is indicated as p_1. Now it can be seen that this is an unusual market, in that governments can set the tuition fee independently from the supply decision, and thus can create an excess demand or excess supply by setting the fee below or above the equilibrium fee. Such effects can be offset, however, by university policies that can shift the demand curve by changing the academic admission requirements. (In this sense a student must meet both the academic and financial "prices".)

Figure 2

The market for higher education
as a consumption item



The government can also alter the demand for university places by providing substitutes in the form of other postsecondary institutions and programs that draw away some of the potential university students. This would reduce or shift downward the demand curve to D_1 .

There have been several studies to analyze the effect on enrolment of changes in tuition fees. A number of these studies have been summarized and compared as shown in Table 1. In most cases the elasticity of demand (or enrolment) in response to price change is found to be less than -1.0, or that a ten percent increase in tuition fee would result in less than a ten percent decrease in enrolment. This result is not surprising since the tuition fee, as noted previously, is a small fraction of the total cost of university education.

Table 1

Alternative Estimates of the Effect of a Change in Tuition on the Enrollment Rate, Various Years, 1919-72

Study	Type	Year	Price response coefficient[a]
Corazzini, Dugan, and Grabowski	National cross section[b]	1963	0.62
Hopkins	State cross section	1963	0.75
Barnes	Individual students	1970	1.53
Radner and Miller	Individual students	1966	0.05
Kohn, Manski, and Mundel	Individual students	1966	0.92
Hoenack	High school districts	1965	0.71
Hoenack and Weiler	Individual students	1972	1.46
Spies	Individual students	1971	0.05
Campbell and Siegel	Time series	1919-64	0.10
Bishop	Individual students	1963	0.90

a. Increase in enrollment rate of eighteen- to twenty-four-year-olds (in percentage points) per $100 decrease in tuition, in 1974 dollars.

b. The data from the national sample were cross-sectionally stratified by the students' states of residence during high school, and average values were computed for each state's sample.

Source: M.S. McPherson, p. 181.

Other studies have found similar results. Hu and Stromsdorfer reported for 60 Massachusetts postsecondary institutions a tuition fee elasticity of -0.46 for four-year institutions and -0.77 for two-year institutions.

An Ontario study by Handa seems to be the only one that estimates enrolment elasticity based on the total education cost, including forgone earnings. For the 1950-1965 period, this was calculated to be -1.46 for university undergraduates, or highly elastic by comparison with most of the results reported for tuition fee effects alone. The same data were used to estimate that a doubling of tuition fees would have reduced enrolment by only 10 to 15 percent.

Several studies have found that the enrolment response to tuition changes depends on student ability, family income, and other factors usually included in accessibility studies. Students with high ability and from high-income families are least responsive to tuition changes.[4] Bishop and Van Dyk found that adults (over 24 years) in part-time studies were much more sensitive to fee changes then were younger, full-time students.[5]

These detailed results accord with the general conclusion of a recent Ontario survey of attitudes on tuition fees. This study reported that tuition fees have their effect on the enrolment decision only at the basic level of whether or not to continue to postsecondary education. Once that decision is made,

> ...financial considerations seem to have a relatively small effect on the choice of institution or program, compared with such other variables as the academic ability of the student and the perceived reputation of the institution.[6]

The effect of changes in tuition fees, compared with the same dollar-value changes in other costs (such as room and board, travel, and forgone earnings) has been analyzed in only a few studies. Bishop found that tuition changes

have three times as strong an impact on enrolment as do changes in other direct expenses, and that changes in forgone earnings have only one-fifth the effect of tuition fees; that is, a $100 increase in the tuition fee has the same result as a $500 increase in forgone earnings. But this difference can be readily explained. When forgone earnings are increasing (due to higher wages for high school graduates) students recognize that their prospective employment opportunities as university graduates are also improving. Moreover, the earnings from part-time work to finance educational costs are also increasing. A different study concluded that changes in tuition fees and in forgone earnings have almost the same effects on enrolment, with the tuition effect being only slightly stronger.[7]

While an increase in forgone earnings may only slightly diminish enrolments, a decrease in such costs does increase enrolments. Handa and Skolnick found that university enrolments in Ontario for 1950 to 1965 responded to increases in the youth unemployment rate (and hence decreased forgone earnings) with an elasticity of 0.15.[8] One may conclude therefore that while the impact of forgone earnings is still to be measured as closely as the tuition effect, this cost element clearly cannot be ignored.

ii. Family Income

The family income of young (18 to 24 years) full-time students plays a dual role in the enrolment decision. In the consumption model, income is a determinant of how much or what post secondary education will be "purchased" while in the human capital model the family income is a primary source of financing for the investment project. Some of the economic studies that estimated tuition elasticities have also examined the elasticity of enrolments with respect to family income. Galper and Dunn found that for the United States for 1919 to 1964 the elasticity was 0.69. That is, a ten percent increase in real

disposable income resulted in an enrolment increase (in four-year colleges) of almost seven percent.[9] This was very similar to the effect found by Hu and Stromsdorfer: an income elasticity of 0.78 for public four-year colleges in Massachusetts.[10] These results suggest that family income is not a strong determinant of enrolments, but other studies have found a higher income elasticity. Campbell and Siegel estimated an income elasticity of 1.20; and Handa calculated this elasticity to be as high as 6.0 for Ontario undergraduates during 1950 to 1965.[11] Foot and Pervin estimated the income elasticity for Ontario university undergraduates for 1979 to be slightly above unity, namely 1.09. This is much closer to the estimates reported above for the United States and suggests that the 1950 to 1965 experience was unique.

iii. Expected rate of return

Economic considerations also enter the decision process through the student's assessment of the value of education in monetary terms. The rate of return on educational investment - calculated by comparing the expected additional income with the expenditures for tuition and supplies as well as forgone earnings - varies over time and across programs. It may be argued that students do not make explicit, detailed calculations of such rates of return, but they do at least behave as if they took such estimates into account. In fact, it has been argued that the postsecondary expansion in the 1960s and 1970s was not so much due to the demographic bulge as to favourable economic expectations; and that a slowing or decline in enrolments is due mainly to worsening economic conditions.[12]

The structure of Figure 1 suggests that the expected rate of return is influenced by social-cultural factors as well as by institutional costs and other factors. This arises both because expectations depend on family and

school influences and because future earnings for graduates of any given program will vary by age, sex, ethnicity, and other cultural characteristics. For example, a study in the United Kingdom found that 16-year-old males expected a private rate of return on their first degree to be ten percent, while females expected it to be eight percent.[13] In this sense, the educational access question is more properly seen as an issue of employment opportunity.

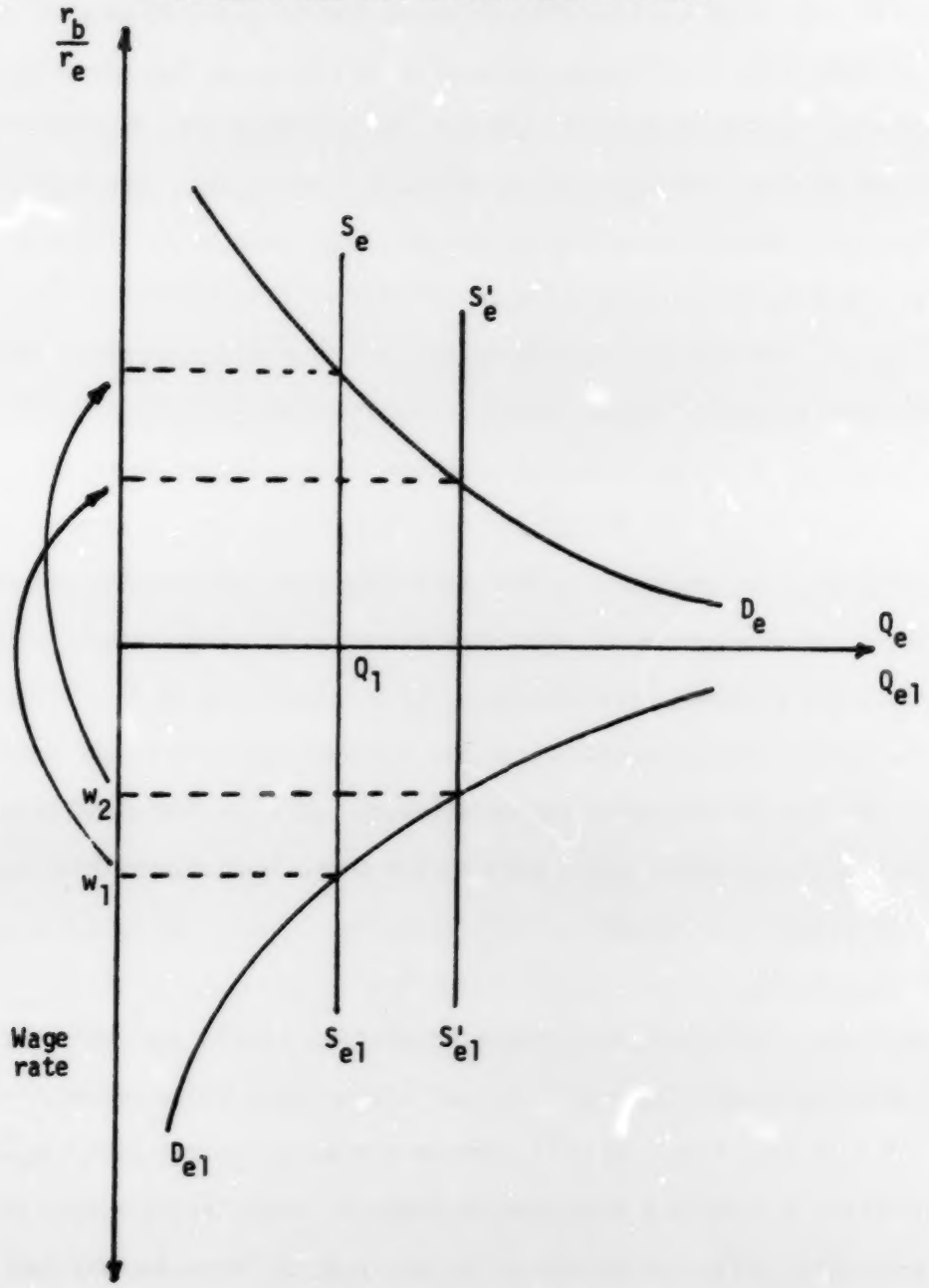
The investment demand for education can be illustrated as in Figure 3. Enrolment (or Q_e) is inversely related to expected return on other investments (r_b) and directly related to the expected return on education (r_e) ; hence, the downward sloping demand curve, D_e . Given the supply of educational places, Q_1 , the number of graduates to the labour market is also, Q_1 . Together with the demand for educated labour, D_{e1} , this determines the wage rate, w_1 , for graduates. This wage increases the expected return, increases enrolment and graduates, and hence decreases the wage rate. This in turn reduces the expected rate of return and enrolment. A cyclical market pattern such as this should be taken into account when governments and universities attempt to alter the demand and/or supply of places, tuition fees, and student aid because each of these are only a part of the complete equation that represents the investment approach.

iv. Student Grants

Various forms of non-repayable student assistance should also be considered with other direct economic factors since such aid is intended to reduce the student's costs of education. What is perhaps the major student aid program in North America - the Basic Educational Opportunity Grant (BEOG) - has been found to have little effect on enrolment in four-year colleges for any family-income group, but the program did increase enrolment from low-income families in two-year colleges and vocational-technical schools.[14]

Figure 3

The market for higher education as investment and the related labour market



Source: Adapted from Mark Blaug, An Introduction to the Economics of Education, Figure 16.

B. Institutional Factors

The institutional factors that influence enrolments include the geographic location or proximity of institutions and programs, admission criteria and procedures, arrangements for transfer credit and for part-time study, and provision of information and counselling.

i. Geographic Proximity

Geographic proximity of a university as a factor influencing enrolment has not been studied as fully as the other economic and social factors discussed in this paper. There is considerable evidence that students from rural areas and small towns and cities are less likely to enrol in university, but it is not clear what intervening factors are having an effect. Do parents of a given income/education/occupation group who live in a small town have the same influence on their childrens' educational decisions as parents who choose to live in a metropolitan area served by one or more universities? Do school and peer group influences differ systematically by geographic location?

Proximity of universities could have two effects. The costs are lower to the extent that a student lives at home rather than in a university residence. There is also a differential effect on attitudes and information. A student living in a university city likely has a better knowledge of programs available, admission criteria and probability of admission, and employment opportunities for graduates. One should also look at the relationship between parents' choice of residence and their attitude toward university education. It may be that parents who strongly favour university education for their children are more likely to choose to live where there is a university.

The empirical evidence seems to suggest that geographic proximity is not an important influence on enrolment. A major American study concluded that this factor - when other student characteristics were held constant - was

not significant in explaining differences in enrolment rates in general:

> Our simplest conclusion, in brief, is that spacial accessibility to one or more colleges has little effect, for most youth, on whether they will attend college - be the accessible school a junior college, an open-door four-year college, or a more selective institution.[15]

The authors did note, however, that proximity may have an effect on certain minority groups, such as black students in some areas of the United States. This general result was confirmed by Hopkins who found that institutional proximity influenced the choice of type of postsecondary institution but not the probability of continuing to postsecondary education.[16]

ii. Admission Criteria

A student's school record - courses taken and grades obtained - is the primary and usually the only basis for admission to university programs. This criterion should contribute to equitable - if not equal - accessibility to the extent that it replaces or precludes other more subjective measures. But there has been a concern for some time that grading standards vary among teachers and among schools, with the result that two students who are virtually equal in all respects but for the school attended and/or courses taken face significantly different chances for admission due to different academic records. This has led to proposals to restore province-wide common entrance examinations for admission to university and other post secondary institutions.

In other countries, such as the United States, Japan, and some European countries, there has been mounting criticism of the external examinations. A review of the arguments on each side would suggest that there should be a careful balance in the use of both types of tests.[17] Alternatively, special admission tests may be designed:

> Growing awareness of the advantages of using complementary or, in the long run, alternative selection procedures, rather than endlessly refining and adjusting school marks to higher education requirements, has induced some OECD countries, e.g., Australia, Sweden and Germany, to assign considerable resources to the development of tests specifically designed for admission purposes.[18]

It appears at present, however, that the issue is not so much a matter of developing tests to replace or complement school grades, but to identify other criteria that can be used to overcome any bias in using meritocratic measures. Such alternative criteria would be related to motivation and other personal characteristics and would include interviews, work experience, and assessment of social-cultural background. This approach may also break through a possible circularity in relying only on grades, namely that while admission depends on grades, these in turn may depend in part on a student's expectation of admission.

These alternative criteria are being pursued not only for equality or equity concerns, but also to identify vocational aptitudes relevant to certain professions and to develop more diversified membership in professions.

A policy option that is frequently mentioned but rarely applied is to determine admission to universities - and particularly to overcrowded programs - by a lottery. This has the advantage of appearing to offer an equal chance to all applicants but it may not be equitable to the extent that no two applicants are ever identical in all respects. While this process may be less costly and less demanding on admission committees, it does not by itself enhance accessibility. An OECD report concludes that a lottery admission system has major disadvantages:

> Even among those who openly recognize the arbitrary element in most selection procedures, there are many who reject the idea of a lottery, considering it to be proof of failure and consequently detrimental to the internal ethos and external image of higher education institutions.[19]

This attention to admission criteria also begins to address the question of what constitutes the "educational opportunity" to which one is admitted. Some would argue that the only explicit function of undergraduate university programs is to instruct students, but others see these as having a number of socializing and democratizing functions as well as being a sorting mechanism for the labour market. To this extent, one can expect continuing proposals to broaden the interpretation of "academically qualified" in the Ontario government's policy on accessibility.

iii. Transfer Credit

The availability or otherwise of routine transfer credit is a major factor for some adult students in accessibility to certain programs and institutions. Persons who are intending to complete a degree program entirely by part-time study may find that they make two or three geographic moves during their course of study. This may require successive transfers to two or three universities, with accompanying difficulties in assuring that completed courses and grades are recognized as equivalent or acceptable in meeting the degree requirements at each successive university.

The bureaucratic process in applying for and being granted transfer credit can also be a significant barrier. It is usually necessary to arrange for academic transcripts to be sent to the next institution, to have these evaluated by an admissions officer or committee, and to be advised by a department or faculty on admissibility to specific programs or courses. Much of the frustration students find in arranging such transfers could be alleviated by more institutional attention to the subject of the next section, information and counselling.

iv. Information and Counselling

Inadequate and erroneous information has been a long-standing problem influencing the demand for further education. Many high-school students are unsure of the costs of post secondary education, the financial assistance available to them, and the various opportunities for further study.[20] Although high-school guidance programs can provide some such information, students whose parents and other relatives have some post secondary education have a more complete picture of the diverse costs and benefits. Guidance programs and information provided through various media may gradually reduce this problem, but the same kind of information must also be directed increasingly toward the parents, especially in the lower-income groups.

Differences in the quality of information and counselling available to students also have a major impact on enrolment decisions. Children of university-educated parents not only have this role-model, but also are likely to be exposed to social conversations about the relative merits of different programs and universities. Similarly, students at high schools that send a large proportion of their graduates to university will benefit from peer-group sharing of information (and some misinformation) on university programs, admission policies, financial aid, etc. The most important policy question at this stage in long-range efforts to enhance quality of post-secondary educational opportunity or choice would seem to be whether any negative environmental effects for home, school, and peer groups can be overcome by better information and counselling.

C. Social and Cultural Factors

The potential list of "social and cultural factors" that have an impact on the probability a student will enrol in higher education is likely endless, but the main groups of factors usually considered are parents' education, occupation, and home environment; ethnic origin; student's age and sex; and the peer group and school environment.

Students make their general educational plans very early in their school life. Indeed there is seldom an explicit decision. Rather, the majority of students grow up in a family environment which conditions their educational plans. Parents play a very important role in this process, either in a positive way by discussing their children's plans with them and encouraging them to go on, or in a negative way by not expressing an opinion or failing to provide encouragement. It is increasingly evident that these cultural influences, and not financial need as such, determine whether students will continue to postsecondary education - and especially to universities. These factors are therefore treated more generally and concisely that the preceding economic and institutional factors since social-cultural background is less directly influenced by government policies and programs in postsecondary education. More fundamental, long-range changes are necessary if these limiting factors are to be overcome.

Many studies have documented the fact that students whose parents did not complete secondary school have a much lower participation rate in university education than children of more-educated parents.[21] But it is also widely observed that among students who complete their secondary schooling, there is a similar percentage who go on to university regardless of family background. The key issue then is to discover why students leave the educational system before finishing secondary school.

In a recent report on access to higher education, it is argued that these differences in enrolment according to parents' education

> ...can be accounted for in terms of parental interest and encouragement, the influence of lifestyle and transmitted aspirations and the familiarity pupils and parents have both with the demands of post-compulsory education and with the types of jobs available after continued study.[22]

An American study of 23,000 high school graduates from 1300 high schools across the United States concluded that even if the effect of family income were completely offset by financial aid, family background would continue to exert substantial influence on postsecondary education decisions. These would still be strongly related to parents' education, when controlling for other variables.[23] In a number of studies that examined separately the effects of mothers' and fathers' education, it has been found that the mother's education has a stronger positive impact on daughters than on sons.[24]

The influence of a student's peer group appears to have more impact on the postsecondary decision, the less support there is from parents. Conversely, peers are least influential in the case of young people whose parents have some direct experience of postsecondary education.[25]

Beyond the factor of parents' education lies a combination of influences that include parents' schooling but also comprises a set of inter-active variables that sociologists describe collectively as social class or "socio-economic status" (SES). This includes schooling, occupation, income, and sometimes race, language, and other factors that determine one's social status. To attempt to summarize the findings from sociological studies of the association between social class and university participation rates would do a disservice to the careful and comprehensive analysis reported in the major studies of postsecondary accessibility in Ontario or Canada during the past decade. Instead, the reader is urged to refer to at least some of the sociologists whose reports are included in the list of references, particularly including R.M. Pike (1970); M.R. Porter, John Porter and Bernard Blishen (1973); J.A. Buttrick (1977); and Paul Anisef, J.G. Paasche and A.H. Turrittin (1980).

D. Accessibility for Specific Population Groups

The preliminary report of the Fisher Committee, to which reference was made earlier, noted that accessibility to universities was of particular concern with respect to certain groups in the population: francophones, residents of northern Ontario, native peoples, women, part-time students, and disabled persons. The limited time and resources available for the preparation of this discussion paper have made it virtually impossible to compile specific data on the current status of university accessibility for these groups, but reference is made below to other studies that are available or will soon be published.

i. Minority Groups

Some of these groups have very recently been the subject of specific studies. The accessibility of northern Ontario residents to university education has been examined in a recent report on a proposed integration of university offerings and administration in northern Ontario. The report of the Fisher Committee recommended that there should be free university tuition for northern Ontario residents in order to increase their university participation rate. While this proposal may have popular appeal, the experience with free university tuition elsewhere - as in Sweden and Australia - suggests strongly that there would be little change in participation rates.

University accessibility for Ontario francophones is enhanced by the provision of instruction in French at the University of Ottawa, at Glendon College of York University, at Laurentian University and its affiliated colleges, and in selected courses at other Ontario universities. The participation of Ontario francophone students in universities is currently being studied in a research project at the Ontario Institute of Studies in Education, with a report expected in a few months. This type of analysis is complicated by the

difficulty in identifying Ontario-resident francophones separately from non-resident francophone students who are attracted to these programs, and by trying to trace Ontario francophones who choose to go outside Ontario for their university education, just as do a significant number of anglophone Ontarians. There is a further difficulty in establishing the participation rates of francophones while controlling for other variables that are so closely associated, such as area of residence, and parents' education.

Accessibility for young Indians and metis was the subject of a special study[26] prepared for the Commission on Postsecondary Education in Ontario in 1971. It would seem that there has been some improvement in the university participation rate for native people, but the barriers that have their effect at the elementary and secondary school levels continue to dominate. Financial assistance, counselling, and special programs for postsecondary study are readily available, but substantial changes in the participation rate will require larger numbers of graduates from secondary schools. At the community college level there has been considerable progress - largely through the admission of native students as mature students who have been outside the educational system for a few years.

An obvious policy option that could increase the probability of admission for certain minority groups is to set quotas or reserve a certain number of places for persons representing such groups. This procedure has the equally obvious difficulty that in the attempt to increase accessibility for one minority group, other minority groups may be made worse off. This policy has received widespread attention in the United States since the Bakke versus University of California case[27] was heard in the U.S. Supreme Court in 1978. A white student applying to medical school objected that he had been rejected with higher grades than a black student who was admitted under an affirmative action admission program.

The Court ordered that the student with the higher grades must also be admitted. Nevertheless, the Court recognized the validity of the University's efforts and ruled special consideration, but not quotas, could be used in the admissions decisions. Consequently, the use of strict numerical quotas for minority groups has been put in doubt and other approaches are sought.

A simple alternative to explicit quotas is to give preference to the applications from minority groups, especially where "all else is equal". This can produce only marginal adjustments because it cannot have much effect on the proportion of applications from the target groups.

ii. Part-Time Study

In approaching the question of access to university programs through part-time study, it is necessary to distinguish those who are employed full-time and decide to study part-time, from those who have previously been in full-time study but who decide - either because of financial difficulties or because they have some doubt about the value of a degree that they will not abandon university study altogether. There is some evidence that the recent rise in the proportion of part-time students in university enrolment is due to the latter group. While they have a legitimate claim on post secondary policy and resources, they represent a less complex set of considerations that impinge on the design of programs and admission than persons who choose to enter part-time study because they cannot afford to leave full-time employment.

Formerly, this group constituted the major clientele for part-time degree study, but recently the other group, and with a different rationale, has emerged:

> It has been suggested that such [part-time] students are hedging their bets as between education and employment (and leisure). In a quasi-rational calculation they perceive that the benefits of higher education (as a positional good) are no longer clear, and accordingly they modify their commitment to it. Thus, paradoxically, while the expansion of higher education may have led more people to participate in it, that same expansion is a reason for not participating fully.[28]

Substantial efforts were made in Ontario universities in the late 1960s and early 1970s to expand the opportunities for part-time study. With the expansion of enrolments and relative increase in funding it became economically feasible to offer courses in the evenings and summers that could previously be offered only during the regular winter day-time schedule. Separate colleges - Atkinson College at York University and Woodsworth College at the University of Toronto - were created to cater exclusively to the needs of part-time students. The "mature student clause" became a common admission provision for older students who had not completed Grade 13. More recently, the Canada Student Loan Plan and Ontario bursaries were extended to include provision for part-time students.

The issue now in the 1980s with respect to accessibility for part-time students is whether there will be a reduction in course offerings during the evenings and summers as a consequence of the general financial squeeze on universities. There is also an increasing need for widespread publication of information on courses, eligibility, and application procedures as these change with the changing structure of the Ontario university system.

A special subgroup of the part-time students are those who live a considerable distance from any university and who are not able to move to the university for full-time study. They receive their part-time instruction through "distance education". Recently, a study on distance education in Ontario reported that about 16,000 Ontario residents are enroled in university credit programs offered through distance education techniques, and that another 25,000 to 30,000 persons could be expected in the near future.[29] These programs are based mainly at Laurentian University, the University of Waterloo, Wilfred Laurier University, and the University of Guelph, although the report recommended that a formal consortium of universities be established (with separate and adequate funding) to co-ordinate the expansion of distance education - primarily through the medium of television.

This service is unlikely to increase participation in university education by those not now involved, but it does increase accessibility to persons who would find it more difficult to continue their learning activities otherwise. The report found that the majority of participants were female, aged 25 to 44, and that most have some postsecondary education.

iii. Physically Handicapped

In any discussion of accessibility to university education, one must include reference to the problems in physical accessibility faced by some disabled persons. This is one group that clearly can be served by increased funding alone. Much has been done at Ontario universities to provide ramps and wider doors for wheelchairs, audio-tapes for blind and visually-impaired students, and so on. There seems to be little quantitative evidence, however, on the total number of students whose access has been improved in these ways, or on the number and kinds of students who may still be barred due to inadequate facilities. Beyond these improvements, there is a requirement for co-operation and special arrangements provided by administrative and teaching staff at the universities. Tests and examinations often have to be written (or typed or orally answered) under special conditions, laboratory or computer assignments altered, and other arrangements made that facilitate the student's participation without compromising the academic integrity of the program. Part of the funding for improving access in this way may need to include a salary for a co-ordinator whose primary responsibility is to initiate the required changes.

3. Alternative Financial Aid Policies

Financial aid policies are not always well co-ordinated with policies on admission or accessibility. Student loan programs, for example, are usually designed primarily for the young, full-time student who then is expected to graduate and immediately take a full-time job. The terms and conditions of such loan programs are less satisfactory for part-time, older students who may continue their studies over a long period, or for others who may not enter full-time employment immediately.

A. Tuition Fees

Many of those who advocate lower tuition fees argue that this is a more direct and more effective policy than increasing student aid because financially-disadvantaged potential applicants are likely to have more information on fees than on student aid. But the cost of increasing enrolment through this approach is very high. Even "free" or zero-tuition is unlikely to change the composition of university enrolment very much because tuition represents only a minor part of the cost, and because so many other factors are influencing a student's decision. For example, in Sweden, where there is no tuition fee, it was found that students from high income families are more likely to choose longer university courses, and children from the lower-income families chose shorter, non-university courses - presumably due to the forgone earnings effect as well as parental influences on motivation and career choices.[30]

Similar results occurred in Australia where tuition fees for postsecondary education were abolished in 1974. A comprehensive survey in 1976 concluded that the overall social composition of students entering higher education in the two or three years following fee abolition "appears to have changed very little".[31] The authors of the same report noted, however, it would be the

groups now under-represented who would be most affected by the re-introduction of fees: part-time students, women, older students, country residents and students of lower socio-economic status.

An OECD report emphasizes that programs with stringent entry requirements - such as medicine or engineering - also tend to offer the higher returns in terms of lifetime earnings and social prestige. Consequently, such programs always have a strong social-cultural bias toward the advantaged groups. Moreover, there seems to be an increasing public recognition that the tuition fee is not a significant influence on the postsecondary decision. This view was confirmed by a recent Ontario survey that found:

> 69% of all respondents feel that current [tuition] fee levels are not a barrier to accessibility...The Ontario Student Assistance Program was considered to be an adequate mechanism for insuring accessibility to those from low income backgrounds. [However] If tuition fees rise and if the differentials between them increase in any fashion, the majority of respondents felt that OSAP ought to be flexible enough to ensure maintained accessibility for those from lower income groups. Loans (at least), should be available to cover the higher fees.[32]

B. Grants and Loans

Financial incentives in the form of lower tuition fees or increased student grants are relatively inefficient methods to increase accessibility because these financial benefits are also received by the many students who have enroled in the absence of such incentives. Jackson and Weathersby have reported, for example, that to increase the participation rate in higher education by one percentage point by an increase of $100 in financial aid to each student actually amounts to $4100 for each additional student who enrols in higher education.[33] Although these numbers do not necessarily apply to Ontario university enrolment in the 1980s, they do illustrate the inefficient effect of direct student aid to increase enrolment.

Some advocates of more student aid in the form of grants rather than loans have argued that students are reluctant to accept a debt obligation, particularly if they are from the lower-income classes. On the contrary, as reported in an earlier study, students from the lower incomes were more prepared to borrow heavily to finance their education then were students from the higher-income families.[34]

A basic objective in designing student aid programs should be to find a method that eliminates any financial barrier to further education without producing undesirable distribution effects that arise from low-cost tuition and other subsidies to university education. One such method is a contingent repayment student assistance program. Such programs have been advocated frequently during the past two decades and minor variations on the scheme have been implemented.[35]

The most recent prominent proposal for a contingent repayment loan plan comes from the Carnegie Council on Policy Studies in Higher Education. This Council has recommended that the U.S. government establish a National Student Loan Bank to administer such a scheme.[36]

A contingent repayment assistance program could be implemented with the following general features:

1. Any student at a postsecondary educational institution would receive an advance equal to part or all (depending whether there was a means test) of the cost of the tuition fee, costs of supplies and transportation, and room and board, for the academic year.
2. The student's advance would state the conditions of payment commencing with the first employment year. These conditions would include the percentage of annual gross income to be paid each year to the student aid fund along with his income tax payments; the number of years for which payments would be required; the interest rate to be applied to determine

when the graduate had paid an amount equal to the original advance plus interest accumulated from the original contract date. The student would apply for an advance each year in a postsecondary program; when the student graduated, the contracts would be consolidated. If the student decided to postpone regular employment the commencement of his payments would be delayed accordingly.

3. Records of the individual's payments to the fund would be kept in his income tax file. When he had paid an amount equal to the advances made to him as a student, plus interest accumulated at the agreed rate, he would be notified that his obligation was fulfilled and that no further payments would be required. The interest rate used for this calculation, would be greater than the fund's borrowing rate and less than the market rate for personal or educational (unsecured) loans.
4. An individual who, because of low earnings, had not repaid an amount equal to principal plus accumulated interest by the end of the repayment period (say 30 years) would not be required to make further repayments. If a graduate emigrated to a country with which there is no tax treaty providing for mutual collection of such taxes, he could have the option of paying the remaining obligation in a lump sum, or agreeing to continue repayments independently on the basis of declarations of income filed annually.
5. The program should be administered by an independent agency that would establish a fund from which it made advances directly to students. Initially, funds could be raised by issuing government bonds and later through payments received from graduates. The agency could administer a means test, provide grants, subsidize the funds, or alter its activities in a number of ways on instruction from the government.

The proposed program has a number of advantages and a few disadvantages. First of all, any financial barrier to post-secondary education would be removed. Second, one of the most important implications of the program is that society bears the risk of this method of borrowing and lifts the risk from the individual, a risk which has made fixed-repayment loans unattractive to many students. Society bears this risk to the extent that in principle the individual makes payments to the fund only in proportion to the monetary benefits he realizes from his education. The program also lifts the taxation burden from those members of the community who have never participated directly in the post-secondary system.

This program could also introduce some flexibility into the operation and financing of educational institutions. Under a contingent repayment scheme, the amount of borrowing permitted would not be related to expected summer employment earnings. Students wishing to attend summer classes, and students preferring not to work and to repay on the basis of future income would be permitted to do so. The development of a trimester system with a full summer session would be facilitated by such a scheme.

The plan would free the student from financial dependence on his family and reduce the pressure on parents to provide financial support for their children.

In addition, if society is re-evaluating its present level of direct support to educational institutions compared with other uses for public funds, the program allows tuition fees to vary accordingly.

Certain criticisms have also been directed at the proposed scheme. The fear has been expressed that students would hesitate to take on a repayment "burden" lasting for twenty or thirty years. But the distinction between this plan and fixed-debt plans must be made clear. Unlike fixed-debt obligations

requiring fixed payment amounts at fixed intervals, the contingent repayment system provides for low or irregular payments in response to low or irregular incomes. In addition, an opt-out provision would permit individuals earning very high incomes to treat past payments as payments of principal and interest on a loan and leave the scheme when these are fully paid.

4. Concluding Observations

The most common observation in the extensive literature on accessibility to higher education is that financial conditions are not a significant barrier for the great majority of potential students. Financial factors have their influence mainly on the student who is at the margin of the group headed for university. If a student is not highly motivated and is unsettled about a postsecondary program, the educational costs may be seen or used as a reason for not going. This conclusion was stated succinctly by Selleck in her recent review of accessibility to Ontario university education:

> ...a well-motivated student with the requisite high school preparation can attend university in Ontario, although he [or she] may have to live in a spartan manner or work part-time. Increasing accessibility beyond this minimum probably involves increasing opportunities for prospective students who are ambivalent, poorly motivated, inadequately prepared, or misinformed about the value of future education.[37]

Indeed, this conclusion was apparent more than a decade ago to the Premier of Ontario, when he was reported to have said:

> ...the problems of low-income students originate long before the post-secondary level - often as far back as Grade 2. Even if university tuition were free, he said, many of these students would never get to university.[38]

A second major observation is that despite the enormous expansion in numbers and types of postsecondary institutions and in student assistance programs, there has been relatively little change in the composition of university enrolments. Pike concluded that for Canada

> there was no indication that the university expansion [of the 1960s] had been accompanied by more than a small increase in the participation rates of students of lower class origins relative to the participation of students from the more privileged classes...In other western countries...the picture would appear to be generally similar: for example, in Britain, France and

> the United States...the state universities and the prestigious private institutions continue to draw from predominantly middle and upper middle class populations.[39]

The same conclusion is reported more recently for Australia. Anderson's review of several studies for that country showed that

> The social composition of students in higher education appears to have changed little over time.[40]

The third major observation, which is related to the two preceding points, is that the level of parents' education is perhaps the strongest single influence on a student's decision whether to continue to postsecondary education, and especially whether to take a university program. This will be an extremely difficult barrier to overcome. In the case of low parental education, it was noted earlier that students generally receive little support or guidance with their further educational plans. Moreover, peer group influence becomes stronger in this case, and for this group, the peer group usually has a negative effect. Whatever success in offsetting these influences may be achieved by information, counselling, and financial incentives, in terms of increasing the participation rates from this under-represented group, may be counteracted in relative terms by a similar increase in participation rates for the group from higher parental educational levels. This occurs when young people from the upper middle class recognize that they need to strive more vigorously to maintain their relative position in the occupational and social structure.[41]

An issue that is perhaps more fundamental than the appropriate relative participation rates of different social groups, is the question of what the overall participation rate should be. This was a primary question in the

1960s when governments were attempting to provide enough university places to accommodate an autonomous demand. Now the question arises again in terms of the government's potential for inducing demand. The economic answer to this question is relatively easy: expand or contract enrolment until the social rate of return (as distinct from the student's private rate of return) is equal to the rate of return realized by the allocation of resources to other sectors of the economy. But the nonmonetary costs and benefits that are almost impossible to identify even conceptually require that there should be a blending or integrating of the economic view with a socio-political view of the appropriate participation rate.

5. Notes

1. Chas. F. Manski and David A. Wise, p. 11.

2. In mathematical terms the expected rate of return, r , is the value of of the discount rate that makes the net present value (NPV) equal to zero where $NPV = \sum \beta_t/(1+r)^t - \sum C_t/(1+r)^t$ and β_t is the expected additional annual earnings for each year in the labour force and C_t is the student's annual cost of education.

3. See for example, R.B. Freeman, (1971).

4. See John Bishop, (1977).

5. John Bishop and Jane Van Dyk.

6. P.S. Ross and Partners, p. 14.

7. W.C. Fuller, C.F. Manski and D.A. Wise.

8. Handa and Skolnick, (1975).

9. Harvey Galper and Robt. Dunn.

10. Hu and Stromsdorfer.

11. Robt. Campbell and B.N. Siegel.

12. Alan Gordon, p. 139.

13. G. Williams and A. Gordon.

14. C.F. Manski and D.A. Wise, p. 21.

15. C.A. Anderson, M.J. Bowman and J. Tinto, p. 267.

16. T.D. Hopkins.

17. See for example, OECD (1983), p. 15ff.

18. Ibid., p. 154.

19. Ibid., p. 163.

20. D.A. Dodge and N.M. Swan.

21. See especially A.H. Halsey, A.F. Heath and J.M. Ridge.

22. G. Williams and A. Gordon, pp. 226-227.

23. C.F. Manski and D.A. Wise, p. 6.

24. See for example C.A. Anderson, M.J. Bowman and J. Tinto.

25. Alan Gordon, pp. 127-128.

26. Environics Research Group.

27. Regents of the University of California v. Bakke, 438 U.S. 265 (1978).

28. OECD (1983), p. 171. "Positional" goods are those determining social status.

29. W.A.S. Smith and B.L. Snowden.

30. M. Woodhall, p. 136.

31. D.S. Anderson et al, p. 197.

32. P.S. Ross and Partners, p. 12.

33. G.A. Jackson and G.B. Weathersby, pp. 649-650.

34. M.R. Porter, John Porter, and Bernard Blishen, p. 162.

35. Yale University introduced a deferred or postponed tuition plan in 1971, under which students can defer tuition and accommodation costs that are then repaid as a percentage of their subsequent annual income. Unpaid balances are forgiven after 35 years. Duke University introduced a more limited scheme for deferring tuition only, but with similar provisions for repayment as a percentage of income over a period of 30 years.

36. Carnegie Council on Policy Studies in Higher Education. A similar proposal has appeared as recently as June 2, 1984, in The Financial Post, "User-pay scheme for education has advantages," by John Kucharczyk.

37. Laura Selleck, p. 13.

38. Hon. Wm. G. Davis, premier of Ontario, quoted in the Toronto Star, March 30, 1971.

39. R.M. Pike (1981), p. 5.

40. D.S. Anderson, et al, p. 197.

41. Ibid.

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